



## **AN INVESTIGATION FOR PRO-POORNESS OF GOVERNMENT EDUCATIONAL POLICY IN PAKISTAN (1991 - 2007)**

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### **ABSTRACT**

Poverty is an increasing problem for Pakistan, which other developing and developed countries on the globe are also facing. Poverty causes illiteracy and illiteracy causes poverty. No country today better exemplifies this cycle than Pakistan, where most educational plans and policies have failed to make any significant contribution towards the increase in literacy rates. Increased literacy rate means increased employment opportunities for the poor along with improvement in their quality of life. The principal objective of this paper is to critically examine the improvement in educational status and poverty, for the above mentioned period. The scope of investigation is to critically analyze government educational policies and their impact on the poor by analyzing the Poverty Elasticity, Pro-Poor Growth Index (PPGI) & Poverty Equivalent Growth Rate (PEGR). This methodology has already been proposed by Kakwani and Son (2004, 2006), in the literature.

Results reveal that educational policies are pro-poor but the overall impact of the policies has been insignificant, due to anti-poor growth policies for educational expenditures, health care expenditures, sanitation, social security welfare, rural development expenditures, natural calamity and safety nets. This study provides evidence for advocating that the newly elected Government of Pakistan pay attention to poverty alleviation reforms which nullify the impact of good educational policies.

**Key words:** Literacy Rate, Primary School Enrollment, GDP Growth Rate, Poverty, Inequality, Pro-Poor Education Index.

**Jel Classification** – C32, I21, I32,

### **INTRODUCTION**

Education plays a vital role in human capital formation. It raises the productivity and efficiency of individuals and thus produces skilled manpower that is capable of leading the economy towards the path of sustainable economic development. Poverty causes illiteracy and illiteracy causes poverty. The relationship between poverty and education is very complex. Poverty is hunger. Poverty is lack of shelter. Poverty is being sick and not being able to see a doctor. Poverty is not being able to go to school and not knowing how to read. Poverty is not having a job, fearing for the future, living one day at a time. Poverty is losing a child to illness brought about by unclean water. Poverty is powerlessness, lack of representation and freedom (Ministry of Education, Government of Pakistan, 2007).

The Millennium Development Goals that emerged from the UN Millennium Declaration of September 2000 are specific measurable targets, including the one for reducing the extreme

poverty that still grips more than 1 billion of the world's people by 2015. Central to this promise are the MDGs related to educational outcomes: (1) Ensure that all children complete primary education by 2015. (2) Eliminate gender disparities in primary and secondary education by 2005. By 2006, most countries have already fallen well behind the necessary targets to meet these goals (Millennium Development Goal, 2006).

Education provides the bedrock for reducing poverty and enhancing social development. An educational system of poor quality may be one of the most important reasons why poor countries do not grow. In Pakistan, the quality of education has a declining trend. It is realized that science education in particular is reaching its lowest ebb and needs to be improved urgently. There is acute shortage of teachers. Laboratories are of poor quality and ill equipped and curriculum has little relevance to present day needs. The schools generally are not doing well. Tracing causative factors responsible for the present state is a critical need. These include defective curricula, dual medium of instruction at secondary level, poor quality of teachers, cheating in the examinations and overcrowded classrooms (Government of Pakistan, 2007).

In Pakistan, the Poverty Reduction Strategy was launched by the government in 2001 in response to the rising trend in poverty during 1990s. It consisted of the following five elements: (a) accelerating economic growth and maintaining macroeconomic stability; (b) investing in human capital; (c) augmenting targeted interventions; (d) expanding social safety nets; and (e) improving governance. The net outcome of interactions among these five elements would be the expected reduction in transitory and chronic poverty on a sustained basis. The reduction in poverty and the improvement in social indicators and living conditions of the society are being monitored frequently through large-scale household surveys in order to gauge their progress in meeting the targets set by Pakistan for achieving the seven UN Millennium Development Goals by 2015. Among them the most important is halving the population living below the poverty line from 26% in 1990 to 13% by 2015 (Economic Survey of Pakistan - 2008).

The purpose of this study is to investigate the improvement in educational status and poverty reduction during the said period. Education plays an important role in the proper functioning of the society. An issue of National Geographic conveys the adversity poor families must face. Some schools are run so badly that few kids attend.

*"It's not unusual in Pakistan to hear of public schools that receive no books, no supplies, and no subsidies from the government. Thousands more are 'ghost schools' that exist only on paper, to line the pockets of phantom teachers and administrators." --National Geographic: Struggle for the Soul of Pakistan, Don Belt 2007.*

Pakistan's fight against poverty is complicated by two main factors: (a) high population rate of growth - roughly 2.1 percent per annum; and (b) limited resources to devote to education. Both of these factors have resulted in the inability of the Government's efforts at expanding educational opportunities to keep pace with the demographic development. Only a very small proportion, around 2% of Pakistan's GNP, goes to the education sector. This is considerably below the minimum of 4.5 per cent called for by UNESCO. School attendance and literacy rates continue to be among the lowest in the world. Although roughly 75 percent of school-age children go to primary school, only 25 per cent obtain a completion certificate. Pakistan's literacy rate is near the bottom - 142nd place among 167 states (UNICEF, 2006).

The study hypothesized that as the literacy rate increases; the rate of poverty decreases and it benefits the poor proportionally more than the non-poor. Although economic? growth is

necessary, it is not sufficient to make any significant dent to poverty. Education sector investments are viewed as part of Government's Poverty Alleviation Plan. Realizing this fact the government had launched a directed program under the title of Poverty Related and Social Sector Program some five years ago. Over the last five years the government has spent Rs.1332 billion on poverty-related and social sector program to cater to the needs of poor and vulnerable sections of the society. Such a huge spending on a targeted program is bound to make a significant dent to poverty.

The overall objectives of this study were to investigate associations between education and poverty reduction. The justification is that an educational policy is likely to play a central role in generating a pro-poor pattern of growth, which benefits the poor proportionally more than the non-poor. This paper is concerned with the assessment of the pro-poorness of government educational policy in view of bringing marginal reforms. For "pro-poor growth" to take policies must be both pro-growth and pro-poor.

To discuss these issues, the paper is organized as follows: literature review; data and methodological framework; results and discussions; conclusions.

## **LITERATURE REVIEW**

The field of development economics has, over the years, produced a number of general principles to guide countries in their efforts at improving the lot of the average citizen. Many of these take the form of a vicious cycle, with perhaps the most pervasive one being that poverty causes illiteracy and illiteracy causes poverty. No country today better exemplifies this cycle than Pakistan. In fact, Pakistan remains a country where most education plans and policies have failed to make any significant contribution to increase literacy rates, improve employment opportunities, and enhance quality of life for the poor. In turn, the country's poverty and underdevelopment has made it difficult to mobilize the funds needed to significantly upgrade the nation's educational system.

In the context of Pakistan, a number of studies have been done to assess the extent and nature of the relationship between education and a large variety of other variables. The quality of primary and secondary education has a declining trend. It is realized that science education in particular is reaching lowest ebb and needs to be improved urgently. At the time of independence and thereafter there remained acute shortage of teachers, laboratories were of poor quality and ill equipped and curriculum had little relevance to present day needs (Behrman, 1976). Butt (1984) has found that five or more years of farmer's education lead to increased farm and labor productivity, reduced use of farm labor, and increased use of yield augmenting inputs like fertilizer. Azhar's (1986) finding that farmer's education results in a significant increase in the farm output by increasing technical efficiency leads further support to the belief that expansion of education in rural areas would help the development of the agricultural sector.

Literacy causes increased productivity in the manufacturing sector (Khan, 1991). A study of the gender wage differential by Ashraf (1993) showed that a significant percentage of the wage gap between males and females can be explained by the difference in their characteristics including education. Saqib (1998) concluded that improved access to quality education is one of the most effective means of lifting the large segments of the population out of poverty. The problems of mass illiteracy, educational inequality, and inefficiency need to be solved as soon as possible. Clearly, the policy of free education through public schools which has been in effect for

decades has not gone a long way in this direction. This makes a new carefully targeted approach towards providing and financing expanding educational opportunities absolutely essential.

The relationship between economic growth and poverty reduction has gone through various phases in the literature. Theories of development given by Kuznet's – 1955; Anand & Kanbur -1984; Fields -1989; and Deininger & Squire -1996 are focused on the fact that the 'benefits of economic growth would trickle down to the poor'. They showed the mechanisms through which the benefits of growth may be transmitted to the poor directly. Kuznet's 1955 hypothesis is based on an inverted U shape relationship between economic growth and income inequality. Adelman & Morris – 1973, questioned upon the relationship between economic growth and benefits to the poor in a pronounced manner. Chenery, et al. (1974) argued the importance of redistribution alongside economic growth.

Major focus on pro-poor growth is shown in the research of Ravallion and Chen (2002). Dollar and Kraay (2001) opined that a positive economic growth provides benefits to both the poor and the whole economy. Similarly Knowles (2001) finds a significant negative effect of inequality on economic growth. Foster and Szekely (2000) showed that the positive value of poverty elasticity is a positive indicator for poverty reduction. Kakwani and Son (2004) presented in their research that rapid reduction in poverty can be assessed through the Poverty Equivalent Growth Rate (PEGR) instead of normal growth rate/GDP growth rate. The World Bank funded the Pakistan Poverty Alleviation Fund (PPAF, 2005) which was designed to reduce poverty and empower the rural and urban poor in Pakistan. The project provides access to much-needed micro-credit loans and grants for infrastructure and capacity building. As such, the PPAF project aims to help the rural poor in Pakistan get out of a cycle of misery and get into a virtuous cycle of opportunities.

Son (2006), proposed a methodology by which the pro-poorness of the government fiscal policies can be assessed with a view to bring marginal reforms. She used the pro-poor growth index for assessing government expenditure and tax policies. This proposed methodology was applied to Thailand utilizing the 1998 Socio-Economic Survey. Son and Kakwani (2006) measured the impact of price changes on poverty. This impact was captured by means of price elasticity of poverty. This paper also derives a new price index for the poor (PIP). Results revealed that price changes in Brazil, during the 1999-2006, favored non-poor instead of the poor. Son and Kakwani (2007), examined the global estimates for pro-poor growth. This cross-country analysis of pro-poor growth was done in 80 countries. There are 237 growth spells during the period of 1984-2001. There is a strong association between growth patterns and certain specific parameters mentioned in the literature. They established a relationship between consumption pattern and pro-poor growth.

Raffo, C. et al. (2007) provides a framework to aid examination of the links between poverty and educational attainment in the UK. They examine the relationship between poverty and education. Their research indicates a corresponding need for extensive and complex policy interventions when educational outcomes are to be disturbed. The Global Monitoring Report 2008 warns that most countries in South Asia will fall short on the MDGs, a set of eight globally agreed upon development goals with a due date of 2015. The author of the report said the rising food and fuel prices would affect developing countries' efforts to cut poverty for achieving the first target under the MDGs. The author said that India has done well in terms of reducing poverty as New Delhi achieved a 9% GDP growth. "Pakistan's performance in terms of reducing poverty is less than India and it requires growth on sustained basis to achieve the desired results."



After reviewing the above cited literature, the need arises for bridging the gap between the educational outcomes and poverty reduction. Education plays a key role in reducing poverty in context of Pro-Poor Growth Index. We anticipate that this paper will contribute to decision-making and stimulate efforts towards better healthy policy in this continent.

## **DATA AND METHODOLOGICAL FRAMEWORK**

Base-line for poverty is derived from Economic Survey of Pakistan (2008) where for food per person 2,350 calories are mentioned as the cut-off point. The latest estimate of inflation-adjusted poverty line is Rs.944.47 per adult equivalent per month, up from Rs.878.64 in 2004-05. For income inequality, micro-data is taken from Federal Bureau of Statistics, Pakistan. Anwar (2006) and Economic Survey of Pakistan (2008) has estimated inequality parameters; the same parameter estimate is taken as reference in this study.

Three methods have been used to critically analyze the nexus between educational outcomes and poverty reduction, namely the paired t-test applied to detect the difference for each variable of education and poverty indicators during 1991-2007. Secondly, the Pro-Poor Education Index (PPEI), was used to assess the government's education and poverty status in Pakistan. Thirdly, the Poverty Equivalent Growth Rate (PEGR) was used to measure the magnitude of education and the benefits of education the poor receive. It links the changes in inequality with the gains or losses of the educational outcomes: a decrease (increase) in inequality leads to gain (loss) in educational growth rates.

### **Paired t-test**

The paired t - test provides a hypothesis test of the difference between population means for a pair of random samples whose differences are approximately normally distributed. The test statistic is calculated as:

$$t = \frac{\bar{d}}{\sqrt{s^2/n}} \quad (1)$$

Where  $\bar{d}$  is the mean difference,  $s^2$  is the sample variance,  $n$  is the sample size and  $t$  is a Student  $t$  quantile with  $n-1$  degrees of freedom. The paired  $t$  test compares two paired groups. It calculates the difference between each set of pairs, and analyzes that list of differences based on the assumption that the differences in the entire population follow a Gaussian distribution. The  $t$  ratio for a paired  $t$  test is the mean of these differences divided by the standard error of the differences. If the  $t$  ratio is large (or is a large negative number), the P value will be small. The number of degrees of freedom equals the number of pairs minus 1. Prism calculates the P value from the  $t$  ratio and the number of degrees of freedom.

### **Pro-Poor Education Index (PPEI)**

The Pro-Poor Education Index or PPEI is the ratio of the total poverty elasticity to the educational growth elasticity of poverty. The poverty elasticity of education captures the percentage change in poverty when there is a 1 percent growth in educational components – provided the education process does not change income inequality. Educational component is pro-poor (anti-poor) if the change in income inequality that accompanies it reduces (increases)

total poverty. Thus, educational components are pro-poor (anti-poor) if the total elasticity of poverty is greater (less) than the educational growth elasticity of poverty.

### **Poverty Equivalent Growth Rate (PEGR)**

The Poverty Equivalent Growth Rate or PEGR is derived by multiplying Pro-Poor Education Index (PPEI) by the educational components growth rate. Education is pro-poor (anti-poor) if the PEGR is greater (less) than the growth rate of educational components. If the PEGR lies between 0 and the mean growth rate of Educational components, then growth is accompanied by an increasing inequality wherein poverty still declines. This situation may be characterized as trickle-down process when the poor receive proportionally less of the benefits of educational components than the non-poor.

## **RESULTS AND DISCUSSIONS**

This paper identifies the Pro-Poor Education Index that is the extension of Pro-Poor Growth Index as used in the study. The Pro-Poor Index is a tool to assess the impact of government education policies on poors. Pro-Poor Education Index is defined as the benefits a poor can enjoy due to pro-poor educational policies. Education, health, sanitation, human resource and infrastructure components have a pivotal role in educating a nation.

### **Paired t-test estimation**

The paired *t* test compares two paired groups. It calculates the difference between each set of pairs, and analyzes that list of differences based on the assumption that the differences in the entire population follow a Gaussian distribution. Paired t-test was applied to detect the difference for each variable of education and poverty indicators between 1991 and 2007.

*Table 1: Education Indices*

S. No.	INDEX	1991	2007	P*
1	Primary School (000)	114.1	158.1	0.0007
2	Middle School (000)	8.7	41.2	0.0192
3	High School (000)	8.2	24.5	0.0525
4	Secondary Vocational Institutions	725	645	0.0804
5	Arts And Science Colleges	612	1242	0.0302
6	Professional Colleges	99.0	451	0.0075
7	Universities	22.0	65	0.0092
8	Primary School Education (%)	32.8	28.0	0.1743
9	High School Education (%)	40.2	37.5	0.2258
10	Post High School Education (%)	27.0	34.5	0.0302
11	Literacy (%)	34.9	55.2	0.0051
12	Expenditure as percent of GNP (%)	2.1	2.42	0.0227
13	Education Expenditure Rs in billion	34.2	211.11	0.0005

\* Paired t-test was applied to detect differences for each indicator in 1991 and 2007. *P* values calculated by the authors.

As presented in table 1, primary school education and high school education decreased significantly in 1991 and 2007 ( $P = 0.17, 0.22$ ), whereas post high school education, literacy rate and education expenditure as percent of GNP increased significantly ( $P = 0.03, 0.005, 0.02$ ).

Literacy rate has shown an upward trend from 34.9% to 55.2%. Specific Education indices of year 1991 and 2007 are reproduced for ready reference (Table 1). By reviewing this data, one can easily assess the progress of education status in Pakistan. The social indicators are shown in Table 2.

**Table 2: Social Sector & Poverty Related Indicators in Pakistan between 1991 and 2007**

S. No.	INDEX	1991	2007	P*
1	Per capita income US \$	426	925	0.0040
2	Headcount Rate in percentage (National)	22.7*	22.3*	0.2570
3	Headcount Rate in percentage (Urban)	18.6*	13.1*	0.1262
4	Headcount Rate in percentage (Rural)	23.5*	27.0*	0.0455
5	GINI coefficient (National)	40.7*	68.0*	0.1112
6	Rural Development expenditure in billion Rs.	15.67	77.93	0.0312
7	Governance expenditures in Rs billion	24.23	66.38	0.0197
8	Exchange Rate 1US\$ = Rs.	22.42	60.61	0.0071
9	Inflation (CPI)	12.66	7.89	0.0824

Source: Data taken from respective HIES and PIHS data sets. Pakistan Reference Bureau – 2007 World Population data sheet. \* Economic Survey of Pakistan, 2008. Paired t-test was applied to detect differences for each indicator in 1991 and 2007. P values calculated by the authors.

Results of the paired t-test indicated an increase in per capita income, a significant increase in income inequality (GINI coefficient – National), Poverty (HCR – Rural), Rural Development Expenditures, Exchanges Rate and Governance Expenditures. While decrease in poverty (HCR – National & Urban areas) and inflation. The indicators of demography, education, sanitation and infrastructure are shown in Table 3.

**Table 3: Demography, Sanitation and Infrastructure Indicators of Pakistan in 1991 and 2007**

S. No.	INDEX	1991	2007	P*
1	Population Growth Rate	2.5	1.9	0.0779
2	Maternal mortality rate (deaths /1,000 deliveries)	3.0	3.5	0.0244
3	Infant mortality rate (deaths /1,000 Live births)	102.4	68.8	0.0430
4	Population using adequate sanitation (%)	51.0	65.0	0.0151
6	Population density persons per square Km	138.0	194.0	0.0207
7	Population planning expenditure in Rs Billion	0.89	6.02	0.0021
8	Social Security and welfare in billion Rs.	3.23	2.67	0.0123
9	Natural Calamity in billion Rs.	0.15	1.21	0.0427
10	Life expectancy (years)	58.9	63.4	0.0690
11	Safety Nets in billion Rs.	6.21	11.03	0.0111
12	Population Growth Rate	2.5	1.9	0.0779
13	Total Fertility Rate (Children born/women)	6.0	4.0	0.0628
14	Literacy (%)	34.9	55.2	0.0093
15	Labour Force (Million)	31.5	47.2	0.0030
16	Unemployed Labour Force (Million)	2.0	3.6	0.0127
17	Employed Labour Force (Million)	29.6	43.9	0.0228
18	Unemployment Rate (% per annum)	6.2	6.6	0.0244

Source: Data taken from respective HIES and PIHS data sets. Pakistan Reference Bureau – 2007 World Population data sheet. Economic survey of Pakistan, various issues. Paired t-test was applied to detect differences for each indicator in 1990 and 2007. *P* values calculated by the authors.

As presented in Table 3, maternal mortality rate, population using adequate sanitation both in rural and at national level, population density per square KM, population planning expenditures, natural calamity expenditures, life expectancy, literacy, education expenditures as percent of GNP and labour force increased significantly in 1991 and 2007. While population growth rate, infant mortality rate, social security expenditures, expenditures on health and total fertility rate decreased significantly during the said period.

Mortality has been decreasing and fertility has shown a significant decline over the recent years, the crude death rate (CDR) of Pakistan is estimated at 8.2 (per thousand) in 2005-06. In Pakistan, decline in mortality rate is due to the elimination of epidemic diseases and improvement in medical services. Despite a considerable decline in the total mortality in Pakistan, infant mortality has still remained high at 77 per thousand live births in 2005. The major reasons for this high rate of infant and child mortality are diarrhea and pneumonia. Maternal mortality ratio ranges from 350-400 per hundred thousand births per year leading to about seventeen thousand new born babies being born motherless. The labor force has grown from 31.5 million in 1991 to 47.2 million in 2007 while the unemployment rate has increased from 6.2 percent to 6.6 percent in the same period. Per capita income in US dollars has grown from \$426 to \$925.

Education expenditure as percent of GNP has grown from 2.1 percent in 1991 to 2.42 percent in 2007. Primary school going population has decreased from 32.8 percent to 28 percent in 2007. Post high school going population has increased from 27 percent to 34.5 percent in 2007. Primary, middle and high schools increased very significantly during the same period. Professional schools, universities, and arts and science colleges have also increased significantly. The literacy rate has shown an upward trend from 34.9% to 55.2%.

The population has grown from 110.8 million to 158.3 million. Specific indices of year 1991 and 2007 are reproduced for ready reference (Table 3). By reviewing this data, one can easily assess the progress of this indicator status in Pakistan.

### **Pro-Poor Education Index (PPEI) Estimation**

The Pro-Poor Education Index basically derives from the idea of poverty elasticity. Public policies can be assessed for different measures of poverty. The head-count ratio is a crude measure of poverty because it completely ignores the gap in incomes from the poverty line and the distribution of income among the poor. The severity of poverty index has all the desirable properties. As such, this study focuses all three P's i.e., head count ratio ( $P^0$ ), poverty gap ( $P^1$ ) and severity of poverty ( $P^2$ ).

*Table 4: Pro-Poor Index for Education Components (1991 and 2007)*

Components	Head count ratio		Poverty gap ratio		Severity of poverty	
	Poverty Elasticity	Pro-Poor Index	Poverty Elasticity	Pro-Poor Index	Poverty Elasticity	Pro-Poor Index
<i>Education</i>						
Vocational Institutions	0.3307	30.906	1.0412	4.384	-0.8396	1.91209
Arts And Science Colleges	0.609	2.023	0.641	1.924	0.952	1.478
Universities	0.2716	21.555	0.217	5.166	0.336	4.359
Primary School Education (%)	-2.664	1.848	-2.838	1.757	-4.21	1.409
High School Education (%)	-4.874	1.778	-5.039	1.733	-7.353	1.408
Post High Education (%)	1.588	1.750	1.705	1.665	2.512	1.371
Literacy (%)	0.971	1.621	1.084	1.522	1.603	1.302
Education Expenditure %	-0.864	0.939	-0.871	0.930	-1.183	0.954

Source: Calculated by the authors.

As can be seen from the results in the Table 4, the poverty elasticity varies widely for different educational components. Between 1991 and 2007, the educational index depicts highly pro-poor except education expenditures that were less favoring to the poor. If, for instance, primary school education increases by 1 percent, poverty measured by all three P's will fall by 2.664, 2.838 and 4.21 percent respectively. Thus, the percentage of reduction in poverty is greater for any increase in primary school education when the poor receive a greater weight than the non-poor.

As pointed out earlier, the Pro-Poor Index is employed to assess government education policy towards more pro-poor in a way that benefits the poor proportionally more than the non-poor. An education component is said to be pro-poor (anti-poor) if the pro-poor index is greater (less) than unity. The higher the value of the index, the greater will be the proportional benefits accrued to the poor. For example, the Pro-Poor Index has the highest value of 30.906 & 21.555 for secondary vocational institutions & for a number of universities, which means that government has to increase these educational indices expenditures that will help the poor much more than the non-poor. Similar results emerge for education components such as increase in primary, high school, post high school education and literacy rate that will help the most.

Pakistan being a developing country also faces the problem of over population. During the past 25 years, cultivable land has increased by 27 percent compared to a 98 percent increase in population, resulting in reduced individual land holdings in Pakistan. Due to a high birth rate the urban population will double in the next 20 years causing more and more forests to be cut to make way for humanity.

**Table 5: Pro-Poor Index for Human Resource Components (1991-2007)**

Components	Head count ratio		Poverty gap ratio		Severity of poverty	
	Poverty Elasticity	Pro-Poor Index	Poverty Elasticity	Pro-Poor Index	Poverty Elasticity	Pro-Poor Index
<b>Human Resource</b>						
Population Growth Rate	1.29	1.752	1.436	1.628	2.131	1.351
Per Capita Income (US\$)	0.463	9.851	0.363	6.849	0.554	4.014
Crude Birth Rate (Per 000 Persons)	-0.928	1.672	-1.014	1.581	-1.493	1.333
Crude Death Rate (Per 000 Persons)	-1.35	4.736	-1.249	6.788	-1.727	2.608
Infant Mortality Rate (Per 000 Persons)	0.0606	0.993	0.114	0.996	0.155	0.997
Total Fertility Rate (Children born/women)	-1.053	1.502	-1.201	1.414	-1.741	1.253
Life Expectancy (in years)	4.785	1.430	5.486	1.356	7.925	1.222

Source: Calculated by the authors.

Table 5 presents the value of poverty elasticity and the Pro-Poor Index for human resource components. The poverty elasticity varies widely for different human resource components. As any increase in resource components reduces poverty, the poverty elasticities of resource components take negative values in Crude Birth Rate, Crude Death Rate and Total Fertility Rate. The higher the value of the index, the greater will be the proportional benefits accrued to the poor. The Pro-Poor Index has the highest value of 9.851 for Per Capita Income and 4.736 for Crude Death Rate. Poverty measured from Life Expectancy by all three P's is highly Pro-poor. Thus, the percentage of reduction in poverty is greater for an increase in Life Expectancy when the poor receive a greater weight than the non-poor.

Population are using adequate Sanitation in Rural at account of 59 percent and at National level it about 65 percent in 2007. Population Planning Expenditure has grown to about 6.02 billion rupees; Rural Development Expenditure is about 77.93 billion rupees while Safety Net Protection and Governance Expenditure has grown to 6.21 and 24.23 billion rupees from 1991 to 11.03 and 66.38 billion rupees in 2007 respectively.

**Table 6: Pro-Poor Index for Infrastructure Components (1991 and 2007)**

Components	Head count ratio		Poverty gap ratio		Severity of poverty	
	Poverty Elasticity	Pro-Poor Index	Poverty Elasticity	Pro-Poor Index	Poverty Elasticity	Pro-Poor Index
<b>Infrastructure</b>						
Sanitation (%)	0.063	5	-0.044	0.094	-0.121	0.222
Social Security welfare	0.1322	-1.324	0.074	-0.468	0.020	-0.094
Natural Calamity	0.0321	-0.377	0.0036	-0.031	-0.019	0.141
Rural Development	-0.049	0.126	-0.139	0.290	--0.194	0.363
Safety Nets	-0.0136	-0.077	0.015	0.073	0.017	0.082
Governance expenditures	0.025	-0.037	-0.148	0.176	-0.267	0.278
Hospitals	2.088	1.527	2.492	1.407	3.701	1.242
Expenditure on Health as % of GNP	-0.464	-1.385	-0.130	-0.194	-0.141	-0.214

Source: Calculated by the authors.

Table 6 presents the value of poverty elasticity and the pro-poor index for infrastructure components. The poverty elasticity varies widely for different infrastructure components. As any increase in infrastructure components reduces poverty, the poverty elasticities of infrastructure components take negative values. The Pro-Poor Index has the highest value 1.527 for hospitals. Poverty measured from hospitals by all three P's is highly pro-poor. Thus, the percentage of reduction in poverty is greater for an increase in number of hospitals when the poor receive a greater weight than the non-poor.

### **Poverty Equivalent Growth Rate (PEGR) Estimation**

Poverty Equivalent Growth Rate depends solely on the Inequality Component. The two measures take into account the effects of both education and inequality on poverty reduction. If the Poverty Equivalent Growth Rate is higher than the Benchmark, it will suggest that the educational components are Pro-Poor and vice versa. Table 8 presents the Actual Growth Rates of Socio-Economic Components verses the Effective Growth Rate.

*Table 7: Classification of Pro-Poor Growth – Socio-Economic Components (1991 and 2007)*

<b>Components</b>	<b>Actual Growth Rate</b>	<b>Effective Growth Rate</b>	<b>Gains (+) / Losses (-) of Growth Rates</b>	<b>Pro-poor / Anti-poor</b>
Literacy (%)	58.16	94.27	36.11	Pro-Poor
Education Expenditure as percent of GNP	15.24	14.31	-0.93	Anti-Poor
Population Growth Rate	-24.00	-42.04	-18.04	Pro-Poor
Per Capita Income (US \$)	117.00	1152.47	1035.47	Pro-Poor
Post high school education	27.77	48.59	20.82	Pro-Poor
High school education	-6.72	-11.94	-5.22	Pro-Poor
Primary school education	-14.63	-27.03	-12.40	Pro-Poor
Life Expectancy	7.64	10.93	3.29	Pro-Poor
Expenditure on Health as % of GNP	-14.28	12.89	-27.27	Anti-Poor
Hospitals	22.22	33.93	11.71	Pro-Poor
Population using adequate sanitation	27.45	-4.80	-32.25	Anti-Poor
Social Security welfare	17.34	-22.95	-40.29	Anti-Poor
Natural Calamity	7.06	-2.66	-9.72	Anti-Poor
Rural Development expenditure	3.97	0.500	-3.47	Anti-Poor
Safety Nets in billion Rs.	0.77	-0.059	-0.83	Anti-Poor

Source: Calculated by the authors. Actual growth rate is calculated between the current (2007) minus previous (1991) year divided by the previous year (1991) multiply by 100.

As presented in Table 7, the gains imply pro-poor growth, while the losses imply anti-poor growth. The actual growth rate in literacy between the year 1991 and 2007 was 58.16 percent while the effective growth rate was 94.27 percent. The gain of 36.11 percent implies pro-poor growth. Literacy level has significantly increased at mass level. The increase favors the poor. Education expenditure as a percent of GNP indicates its presence as anti-poor. Keeping in mind this fact that educational expenditure may also be increase pro-rata with the developed

nations for prosperity of nation. Rich people are more cautious about their family status. Poor people are more prone to a quantum increase in population though they have very limited resources. This ultimately ends up into anti-poor benefits.

Population Growth Rate declined very significantly between 1991 and 2007. This decline in the population growth rate spread the increase in the per capita income that contributes towards pro-poor effect. The common man in the country has recognized the importance of primary, high and post high school education. The poor are sending their wards for higher education which was not there in the past. This trend has made both parameters as pro-poor. In Pakistan, 22.3 percent of population is living below the poverty line. Though there has been a little improvement in their status, the poor are striving hard to have their bread winning activity. Poor infrastructure, inflation, poor health facilities ultimately has drawn down the parameter of education into anti-poor.

In this era of modernization we are using a lot of chemical products; people living in cities are using less natural products than the people living in the country.. This may be a contributing factor in the longer life expectancy among the poor living in the country. Healthcare expenditures have gone down; the growth rate is also in negative and the overall picture is in favor of non-poors. Literacy level has also shown positive results in favor of the poor.

Sanitation, natural calamity, governance and rural development expenditures all are categorized as Anti-Poor although there have been a significant improvement in all of these parameters. To date, approximately 25 percent of the people are unable to get good sanitation and potable water. We can extend the benefits only when we would be improving the infrastructure especially at rural level. Government must pay attention to that area where the poor get losses from growth.

In this study, we have clarified that literacy rate, life expectancy, population growth rate; primary, secondary, high, vocational training schools education, hospitals etc were significant predictors of education in Pakistan during the year 1991-2007. Significant associations between per capita income, number of universities, arts colleges, professional institutes etc were also found. These findings are important because they indicate the link between education status and poverty reforms in Pakistan. The results imply that increasing the literacy rate is good for the poor people to alleviate poverty. Along the same lines the government must increase education and health-related expenditures for pro-poor growth.

## **CONCLUSION**

There is a strong, straight and linear relationship between education and poverty. Poverty reduction means a visible development for the common man, along with a lot of growth opportunities for the poor. Education empowers the poor to participate in the developmental process. Improvement in knowledge and skills base results in the improvement of per-capita income. More spending power increases the quality of life. Education in turn, decreases gender bias which helps in improving the human development indicators. Investment in education and development is a must for Pakistan to pass through the transition of a developing country towards becoming a developed nation.

Results reveals that educational policies are pro-poor but the overall impact has been insignificant due to anti-poor growth policies for educational expenditures, health care expenditures, sanitation, social security welfare, rural development expenditures, natural

calamity and safety nets. Government subsidy schemes in education, healthcare and services sectors will be pro-poor which will lead to a greater reduction in poverty. The future research in this area may be conducted with reference to trade and services to the poor.

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